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Is There a Cheaper and Faster Way to Distribute Medical Supplies?

For nearly a decade, the U.S. Army has been supporting combat operations in Afghanistan and Iraq. Keeping soldiers supplied in such far-flung locations takes an enormous amount of supplies, none of which is more critical than medical supplies used daily to save soldiers' lives. However, medical supplies are distributed through their own distribution system and not mixed with other things soldiers need such as rations, fuel, ammunition, and so forth. The Army is under pressure to reduce costs wherever it can, and it asked RAND Arroyo Center to find out whether consolidating medical supply distribution could be more efficient and thus less expensive.

How Medical Supplies Are Distributed Now

Currently, two locations distribute medical supplies to units in Iraq and Afghanistan: one in Qatar and one in Germany (see the map on the following page). Qatar fills about 60 percent of the demand, stocking only the fastest-moving items. It operates seven days a week, using contract and military personnel. Germany both replaces stocks distributed by Qatar and fills the requests for items not stocked in Qatar. The location in Germany operates five days a week and uses local civilians.

Material other than medical supplies is distributed from a depot located in Kuwait, from distribution centers located in the United States (usually from Defense Depot Susquehanna Pennsylvania), and, for some items such as food, directly from vendors. Given that both systems distribute supplies to the same places, the question arises whether it would be more efficient to merge the two systems.

Options Considered and Criteria Applied

To ascertain whether consolidation would lead to efficiencies, Arroyo researchers evaluated five options:

Key Points

- Medical supplies are stocked and distributed separately from other supplies that soldiers need, such as fuel, ammunition, and spare parts.
- Consolidating distribution of medical supplies in either Germany or Qatar could either lower costs, improve performance, or both.
- Shipping supplies from either the United States or Kuwait offers no advantages.

- Status quo.
- Deliver directly from the United States.
- Stock medical supplies in Kuwait.
- Put more of the items now stocked only in Germany at Qatar.
- Consolidate all medical stocks at the Germany depot.

To assess the options, Arroyo researchers used two criteria: performance and cost. To qualify as a viable alternative to the status quo, an option first had to deliver medical supplies at least as fast as the current system and ideally even faster. To assess performance, researchers evaluated the time required for each segment of the supply process (e.g., time from when an order is sent until it is received; time from order receipt until a release order is cut; time from when an order is cut until the materiel is retrieved from the warehouse; and so forth). The second criterion was whether a given option cost less than the status quo. The cost analysis included transportation costs, any new construction required to implement an option, the effect of a shift in demand toward Afghanistan and away from Iraq,

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Distribution Centers in Germany, Kuwait, and Qatar



any increase in labor costs, and any costs associated with establishing increased stocks.

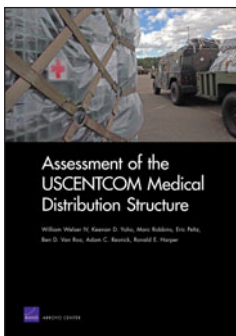
Results

The table shows the results of the analysis. Compared with the status quo, two options were assessed as having better performance, lower cost, or both. Two options were assessed as having worse performance or higher costs than the status quo.

Performance and Cost of Options

Option	Performance	Cost
Status quo	—	—
Increase stocks at Qatar	Better performance	Potentially higher cost
Stock medical supplies in Kuwait	Worse performance	Likely similar cost, but potential for higher costs
Ship from the United States	Overall worse performance	
Consolidate in Germany	Better performance	More cost-efficient

- **Ship from the United States.** Direct vendor delivery of a spare part is the closest analog to the medical model that relies on prime vendor support. Beginning at a vendor's location, the part is shipped to a consolidation and packing point and then on to a departure airfield. Supporting Iraq or Afghanistan from the United States leads to worse performance. Total time from when a vendor receives a materiel request until it arrives at the customer's airport is 28 days, compared with 10 days for medical supplies. Because the processing time for shipments from the United States is so much longer, this option received no further consideration.
- **Shift stocks to Kuwait.** The analysis shows that there is no case for moving Qatar's stocks to Kuwait. None of the data examined indicates that Kuwait would offer equal or better performance. The cost analysis concludes that with the drawdown of forces in Iraq and the increase in Afghanistan, a potential cost advantage for conducting medical distribution operations from Kuwait disappears and with it any cost rationale for altering the current operations.
- **Increase stocks at Qatar.** Consolidating operations in Qatar would result in about a 20 percent improvement in performance, perhaps more. However, stocks would have to be increased significantly, some construction would be required to accommodate the increase, and some additional people would be needed to handle it. Overall, costs would increase slightly.
- **Consolidate in Germany.** Consolidation of medical supplies in Germany would yield the same performance increase as in Qatar. Consolidation in Germany would also yield a relatively modest cost reduction of between \$1 million and \$3 million annually, depending on the level of operations in Iraq and Afghanistan. There is some potential for further cost reduction by renegotiating contracts with the commercial air carrier to distribute material from only one airfield. This analysis assumes that Germany extends its operation from five days to seven, which would incur an increased cost. Whether military or local nationals would provide the additional labor remains to be determined. Overall, this was the preferred option. ■



This research brief describes work done by the RAND Arroyo Center and documented in *Assessment of the USCENTCOM Medical Distribution Structure*, by William Welser IV, Keenan D. Yoho, Marc Robbins, Eric Peltz, Ben D. Van Roo, Adam C. Resnick, and Ronald E. Harper, MG-929-A, 2010 (available at <http://www.rand.org/pubs/monographs/MG929.html>). This research brief was written by Jerry Sollinger. The RAND Corporation is a nonprofit institution that helps improve policy and decisionmaking through research and analysis. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. **RAND**® is a registered trademark.

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